

Appl. No. 10/656,673  
Atty. Docket: 2003B089  
Amendment dated November 22, 2005  
Reply to Office Action mailed August 23, 2005

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### REMARKS/ARGUMENTS

#### Status and Request for Reconsideration

Reconsideration of this application is requested. The claims submitted for reconsideration are claims 1-114.

Independent claim 1 has been amended to include a step of separating at least a portion of the catalyst particles from the product in a disengaging zone. The step is more fully described in the specification at paragraph [0049] and Fig. 5. In addition, the claims have been amended to include an additional step of separation using a counter-flow cyclone separator and modulating gas flow rate to the separator to control particle size. See paragraph [0076] of the specification.

Claims 104-114 are newly added. Claim 104 describes an invention related to that of claim 1. Accordingly, no new matter has been entered and no appropriate ground for restriction or election is raised.

#### Election/Restriction

Claims 23-103 were removed from reconsideration due to the requirement of an election of species. Applicants continue to assert that the requirement is in error and request consideration of all claims on the merits.

Applicants note that although over 100 claims have been submitted in this application, it has been merely alleged in the Office Action that this application has "multiple claim groupings spanning . . . numerous classes, thus a burden is clearly present." 8-23-05 Office Action, page 2. No examples of numerous classes nor any showing that a burden has been presented has been indicated. Only a conclusion not backed by fact has been alleged.

Six independent claims were originally presented, but only independent claim 1 and its dependent claims 2-22 were considered on the merits. The classes and subclasses involved in examining the remaining claims 23-103 should be the same as that involved in examining claims 1-22. Therefore, there should be no added burden in examining all claims presented. Accordingly, Applicants request consideration of all claims on the merits.

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#### Information Disclosure Statement

The information disclosure statement filed 9/5/03 was considered to be not fully compliant. The reason for not being fully compliant was that the publication dates of the cited patent applications and the Fisher-Kolsterman publication were not listed.

The patent applications listed on Applicants' PTO-1449 form identified three patent applications, listing serial no., inventor name, and filing date. According to 37 CFR 1.98(b)(3), this is all the information that is necessary. Accordingly, these documents must be considered by the Examiner.

It is the understanding of the undersigned that the Fisher Klosterman publication was taken from Fisher-Klosterman's website. See <http://www.fkinc.com/fki/products/cycloneclassifier.asp>. The publication indicates that particle classifiers are currently available for sale. At this time, it is not known by the undersigned if such classifiers were on sale prior to the filing date of this application. In any event, the Examiner should consider the relevance of the publication in light of the claimed invention. The fact that Applicants inadvertently left off the publication date in form PTO-1449 should be insufficient ground to warrant the Examiner's refusal to consider any document in which an English language copy was actually submitted and identified on the PTO-1449 form.

#### Abstract

The Abstract has been objected to for improper language, and correction was required. This objection is traversed.

The Office Action has merely made a broad statement that Applicants' Abstract contains improper language. No example or reason for any language being considered improper was given. Applicants believe that the Abstract as originally filed meets all of the suggested criteria of MPEP 608.01, and that this objection is in error. Accordingly, Applicants request removal of the objection.

#### Claim Rejections – 35 U.S.C §§ 102 and 103

Claims 1-14, 16-19, and 21 were rejected under 35 U.S.C § 102(b) as being anticipated by U.S. Patent No. 4,302,565 (Goeke). In addition, each of claims 1-21 was rejected under 35

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U.S.C § 103(a) as being unpatentable over Goeke in view of WO 02/05950 (Vaughn). These rejections are traversed and reconsideration requested.

This invention is directed to the removal of catalyst particles from a reaction system based on size of the particles. In the reaction system, the catalyst particles are contacted with a feedstock in a reaction zone to convert at least a portion of the feedstock to product. A portion of the catalyst particles are separated from the product, and directed to a separation unit, where the catalyst is further separated by size. By modulating flow rate of a gas stream that is injected into the separation unit, a catalyst stream having a smaller median particle diameter than that of a second catalyst stream is recovered. This stream is then directed back to the reaction zone.

The separation of catalyst particles based on size allows for control of catalyst size distribution in the reaction process. By keeping an appropriate size distribution, the reaction process can operate so as to maintain desirable fluidization properties of the catalyst and to maintain desirable catalytic activity characteristics. See paragraph [0010].

Goeke discloses a gas phase polyethylene process. The process uses a reactor type typical of gas phase processes.

The Goeke process differs from Applicants' claimed invention in that Goeke does not provide any gas flow to a separation unit that could affect separation of catalyst by particle size. Moreover, Goeke fails to suggest that any such separation could be used to recover a first catalyst stream having a smaller average diameter catalyst than a second stream, and directing the first stream back to the reaction unit from which it came. Accordingly, Goeke fails to disclose or suggest Applicants' claimed invention.

It was noted in the Office Action that Goeke fails to disclose the use of a catalyst regenerator and a molecular sieve catalyst. Vaughn, however, was cited as support for the ultimate conclusion in the Office Action that the use of a regenerator and molecular sieve catalyst would have been obvious.

As noted above, Goeke is directed to a gas phase polyethylene manufacturing process. In this type of process, catalyst is recovered with solid product. There is no separation of the solid product from the catalyst, and there is no catalyst that can be separately recovered, regenerated and recycled back to the reaction unit. Therefore, it is not only not obvious to use a regenerator

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in a gas phase polyethylene process, it simply cannot be done. This means that the methanol to olefins process described in the Vaughn reference is completely different from the Goeke polyethylene process, and the two references are not combinable. To take a part of Vaughn's methanol to olefin reactor system and put it into Goeke's polyethylene reactor system would just not make sense.

The catalyst used in the Goeke gas phase polycethylene process is a Mg and Ti containing complex catalyst. See col. 1, lines 12-16. This catalyst is completely different from the molecular sieve catalyst used in the Vaughn process to make olefin from methanol, and the Vaughn catalyst is not substitutable with the Goeke catalyst. Therefore, is it not only not obvious to use a molecular sieve catalyst to make polyethylene, one simply would not be able to use such a catalyst to make polyethylene. Accordingly, the combination of Goeke and Vaughn fail to suggest Applicants' claimed invention.

Claim 22 has been rejected under 35 U.S.C § 103(a) as being unpatentable over Goeke in view of Vaughn, and further in view of U.S. Patent No. 6,023,005 (Lattner). This rejection is traversed and reconsideration requested.

Lattner, like Vaughn, is directed to the manufacture of olefins using methanol as feed. Lattner is not combinable with Goeke for the same reason that Vaughn is not combinable with Goeke. That is, portions of a methanol to olefins reaction system are not combinable with a gas phase polyolefin manufacturing process.

In both the Lattner and Vaughn methanol to olefin reaction processes, catalyst flows in a fluidized state up a riser reactor and contacts methanol feed. The methanol feed converted to product as the feed, product, and catalyst flow together in the reactor. The product is in the gas phase, and the catalyst remains as solid particles. After the product and catalyst exit the riser, they are separated and the catalyst, which has become covered with coke is sent to a regenerator. Coke is burned from the catalyst in the regenerator, and as shown in Lattner, can be cooled following the very hot regeneration process. Nothing similar to this regeneration and cooling occurs in a gas phase polyethylene process, which is exemplified in the Goeke reference. Therefore, the combination of Goeke, Vaughn, and Lattner fails to suggest Applicants' claimed invention.

